

**Remarks/Arguments:**

Claims 1-8, 10, 15, 16, 18, and 21-24 were the pending claims in this application. Claims 25-27 are new. Thus, claim 1-8, 10, 15, 16, 18, and 21-27 are now the pending claims in this application.

Claims 1 and 2 are currently amended. The claims are supported throughout the original specification. No new matter has been added.

Claims 25-27 are new. New claim 25 is supported in the original specification at, for example, page 1, lines 15 and 16 and original claim 1. New claim 26 is supported in the original specification at, for example, page 8, lines 17-27; page 10, lines 16-26; and original claims 18 and 19. New claim 27 is supported in the original specification at, for example, page 9, lines 7-9; page 11, lines 14-18; and original claim 20. No new matter has been added.

Applicant's representative thanks Examiner Takeuchi for the courtesy extended on May 4, 2010 to discuss the Advisory Action. Further to this discussion, two references are concurrently submitted in an Information Disclosure Statement herewith to show the differences between wall-flow filters and flow-through monoliths.

**Rejections under 35 U.S.C. § 112, sixth paragraph**

Claims 19 and 20 were deemed to not properly invoke 35 U.S.C. § 112, sixth paragraph, for certain means-plus-function language. Claims 19 and 20 were cancelled, but the subject matter thereof has been incorporated into new claims 26 and 27. The means-plus-function language has been removed. Therefore, Applicant respectfully submits that the rejections are now moot.

**Rejections under 35 U.S.C. § 103**

Claims 1-8, 10, 15, 16, 22, and 23 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 4,550,034 (Shimrock et al.). Claim 24 stands rejected as obvious over Shimrock et al. in view of U.S. Publication No. 2007/0028604 (Twigg et al.). Claims 18, 20, and 21 stand rejected as obvious over Shimrock et al. in view of U.S. Patent No. 6,695,278 (Ellis), and claim 19 stands rejected as obvious over Shimrock et al., Ellis, and U.S. Patent No. 4,562,821 (Ikeda). Applicant respectfully traverses these rejections. Applicant contends that these rejections are improper, and the claims distinguish over the cited

references because Shimrock et al. fails to disclose or suggest (1) a wall-flow filter; and (2) reducing the pressure in the pore structure of the wall-flow filter *prior to* contacting the surface of the evacuated channel walls with the liquid.

"To establish a *prima facie* case of obviousness, ... the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. §2143. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). See M.P.E.P. § 2141.02(VI).

### **Wall-Flow Filter**

Claim 1 is directed to a method of manufacturing a catalysed ceramic wall-flow filter. Claim 1 expressly recites that "reducing pressure in the pore structure of the wall-flow filter occurs prior to contacting the surface of the evacuated channel walls with the liquid and the plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter." Thus, as claimed, the method is used for making a wall-flow filter. A wall-flow filter has a plurality of channels plugged at an inlet end or an outlet end, which causes the gas to pass through the channel walls to reach the downstream end of the filter. See the disclosure at page 2, lines 11-18 of the original specification.

On the other hand, flow-through monoliths do not have plugged ends, and the gas passes straight through the channels. The gas does not pass across channel walls. Shimrock et al. describes a flow-through monolith, not a wall-flow filter. The interior of the ceramic monolith is a plurality of longitudinal passages extending from end to end thereof. See column 4, lines 15-17 of Shimrock et al. The flow path is along the length of the channels, i.e., axially. Shimrock et al. does not disclose that the plurality of channels in the monolith are plugged at an inlet end or an outlet end, as recited by claim 1. Thus, Shimrock et al. fails to disclose or suggest a wall-flow filter. Moreover, this difference is relevant in the method step of reducing the pressure in the pore structure because the "flow path" of the liquid catalyst component or precursor would be very different depending on whether the vacuum is applied to a flow-through monolith or a wall-flow filter.

Accordingly, a *prima facie* case of obviousness has not been established. Claims 2-8, 10, 15, 16, and 22-25 depend from claim 1, and therefore should each be allowed as dependent thereon.

**First Reducing Pressure**

Claim 1 also recites, in part, that the step of reducing the pressure in "the pore structure of the wall-flow filter occurs **prior to** contacting the surface of the evacuated channel walls with the liquid." Thus, as claimed, there is a step of reducing the pressure to provide evacuated channel walls and another step, occurring after the reducing step, of contacting the surface of the evacuated channel walls with the catalyst component/precursor.

The Advisory Action at 2(a) states that:

Shimrock does not expressly teach [that] reducing the pressure in the pore structure of the wall-flow filter occurs prior to contacting the surface of the evacuated channel walls with the liquid. However, claim 1 teaches the use of a vacuum, which can be applied either before or after contacting the surface of the evacuated channel walls with the liquid. So, it would have been obvious to a person of ordinary skill in the art at the time of the invention to draw a vacuum prior to contacting the surface of the evacuated channel walls with the liquid in the invention of Shimrock.

Applicant respectfully disagrees, however, because Shimrock et al. does not contemplate applying the vacuum first, and expressly teaches the opposite, namely contacting the substrate with the slurry, and subsequently, applying a vacuum.

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983). A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). See also M.P.E.P § 2141.02.

Shimrock et al. discloses first placing the ceramic monolithic catalyst support member in a reservoir containing a predetermined amount of slurry, and subsequently, applying a vacuum to the opposite end of the monolith to draw the slurry into the interior skeletal passageways until the slurry in the reservoir is exhausted. See e.g., column 3, lines 10-24 Shimrock et al. Shimrock et al. cautions that it is *critical* that, when the monolith is partially submerged in the coating slurry to maintain a gap between the bottom edge of the monolith 18a and the bottom surface 16 of the pan 10 exists *before* the vacuum is drawn. Column 7, lines 3-10 of Shimrock

et al. See also Figure 1 showing the monolith 18 placed in a pan 10 of slurry 11 submerged below slurry level 11a, and then applying a cover 14 to apply a reduced pressure in chamber 21. Therefore, Shimrock et al., considered in its entirety, fails to disclose or suggest reducing the pressure in the pore structure *prior to* contacting the surface of the evacuated channel walls with the liquid, and actually teaches away from the claimed invention by indicating that it is critical to position the monolith in a certain way when submerged in the coating slurry before applying any vacuum.

The Advisory Action indicates that "the Shimrock disclosure teaches a method of optimizing the coating impregnation, as can be seen by the disclosure prior to and after said section, rather than the feasibility of coating by only applying a vacuum after the monolith is partially submerged." Advisory Action paragraph 2(b).

Shimrock et al. expressly states, however "In practicing the coating slurry vacuum **impregnation process of the present invention**, it is **critical** that when the monolith is supported in the vessel, partially submerged in the coating slurry, that the bottom of the edge of the monolith 18a be positioned in the vessel so that there exists, **before the vacuum is drawn** on the monolith, a gap between the bottom edge of the monolith and the bottom surface 16 of the pan 10." Column 7, lines 3-10 of Shimrock et al. (emphasis added). Thus, it is clear that this is not just one embodiment of Shimrock et al. but the "present invention." It is also evident from the claims of Shimrock et al., that their invention required contacting the liquid prior to drawing the vacuum. Additionally, Shimrock et al. notes a consequence of applying an initial vacuum that is too high, even after previous contact with the slurry, because spiking may occur where the slurry is not drawn uniformly up into the cells of the substrate. Column 6, lines 29-37 of Shimrock et al.

Accordingly, for this reason as well, Applicant respectfully submits that a *prima facie* case of obviousness has not been established. Thus, claim 1 should be in condition for allowance. Claims 2-8, 10, 15, 16, and 22-25 depend from claim 1, and therefore should each be allowed as dependent thereon.

### **Claims 18, 21, 26, and 27**

Claim 18, while not identical to claim 1, recites similar features including a catalysed ceramic wall-flow filter having filter walls, the plurality of channels in the wall -flow filter are plugged at an inlet end or an outlet end of the wall-flow filter and means for reducing pressure

in the isolated channels to below the surrounding atmospheric pressure thereby to establish a vacuum in the pore structure of the filter walls to provide isolated and evacuated channels. As Shimrock et al. fails to teach or suggest the features of claim 18, a *prima facie* case of obviousness has not been established. Claim 21 depends from claim 18, and therefore should be allowed as dependent thereon.

New claim 26, while not identical to claim 1, recites similar features including a plurality of channels in the wall-flow filter are plugged at an inlet end or an outlet end of the wall-flow filter, and a vacuum pump to reduce pressure in the isolated channels to below the surrounding atmospheric pressure thereby to establish a vacuum in the pore structure of the filter walls to provide isolated and evacuated channels. As Shimrock et al. fails to teach or suggest the features of claim 26, a *prima facie* case of obviousness has not been established. Claim 27 depends from claim 26, and therefore should be allowed as dependent thereon.

As Twigg et al., Ellis, and Ikeda are not relied upon in the Office Action for the features of wall-flow filters or reducing pressure prior to contacting the evacuated channel walls, a *prima facie* case of obviousness has also not been shown with respect to combinations of Shimrock et al. with these additional references for at least the reasons set forth above.

#### **Claim 24**

Additionally, with respect to claim 24, Twigg et al. (U.S. Publication No. 2007/0028604) does not qualify as prior art under 35 U.S.C. 102(e). In order to qualify as prior art under Section 102(e), the reference must be a published application, a granted patent, or an international application filed under the Patent Cooperation Treaty (which designates the U.S. and is filed in English) filed by another in the United States *before* the invention by the applicant. 35. U.S.C. § 102(e). Twigg et al. does not qualify as prior art because the PCT (PCT/GB04/00882) for Twigg et al. was filed March 5, 2004, which is the same date as the filing date of the priority application in the present case, not before. Nonetheless, Twigg et al. is owned by Johnson Matthey, which is also the assignee of the present case, so Twigg et al. cannot be used in an obviousness rejection under 35 U.S.C. § 103(c)(1). Accordingly, Applicant respectfully requests that the rejection over claim 24 be withdrawn.

**Conclusion**

For all of the foregoing reasons, Applicant respectfully requests reconsideration and allowance of the claims. Applicant invites the Examiner to contact his undersigned representative if it appears that this may expedite examination.

Respectfully submitted,



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